

Utility Savings Initiative Overview

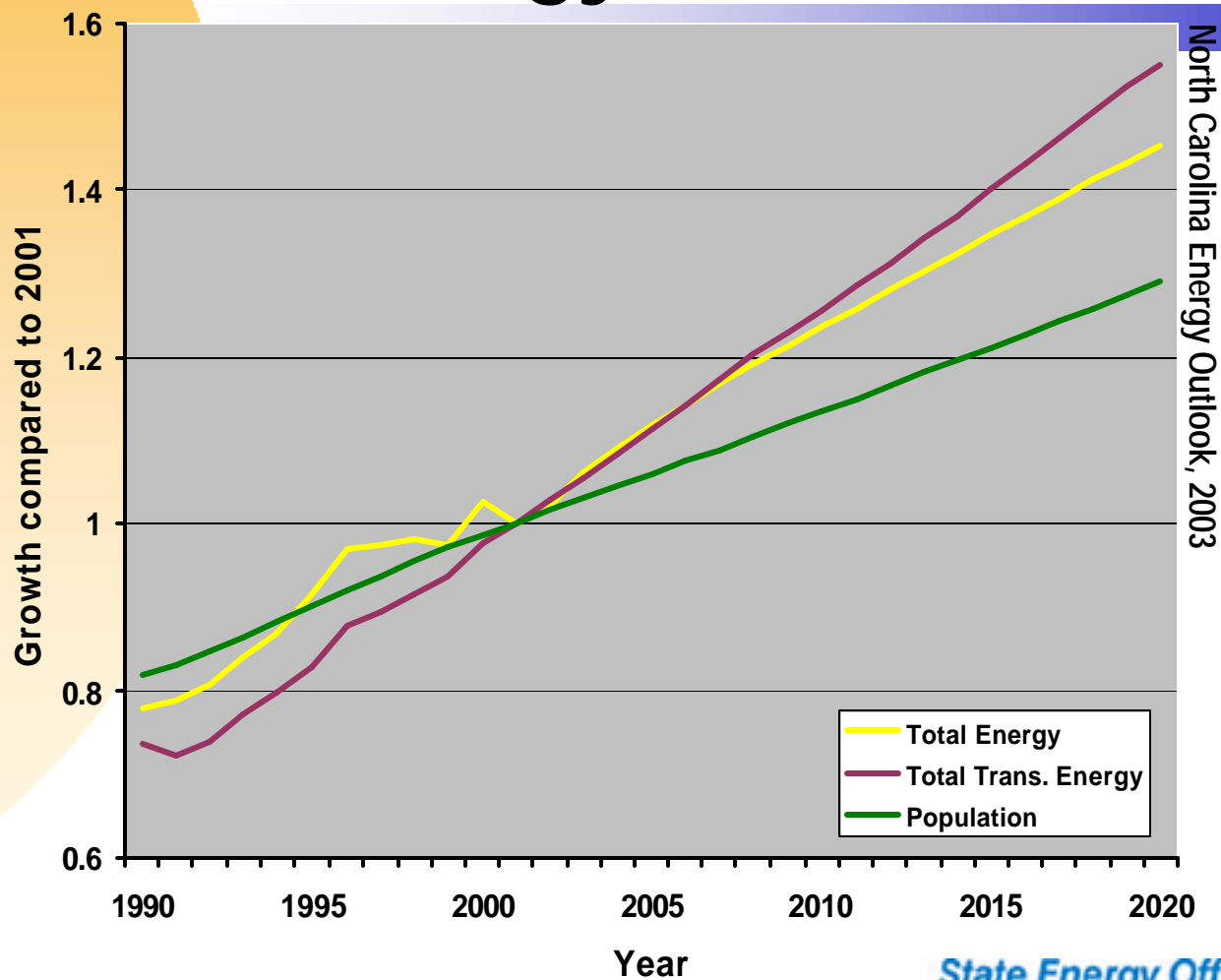
Environmental Planning and Policy Committee
of the
NC Board of Transportation
January 31, 2007

Larry Shirley
State Energy Office
Department of Administration

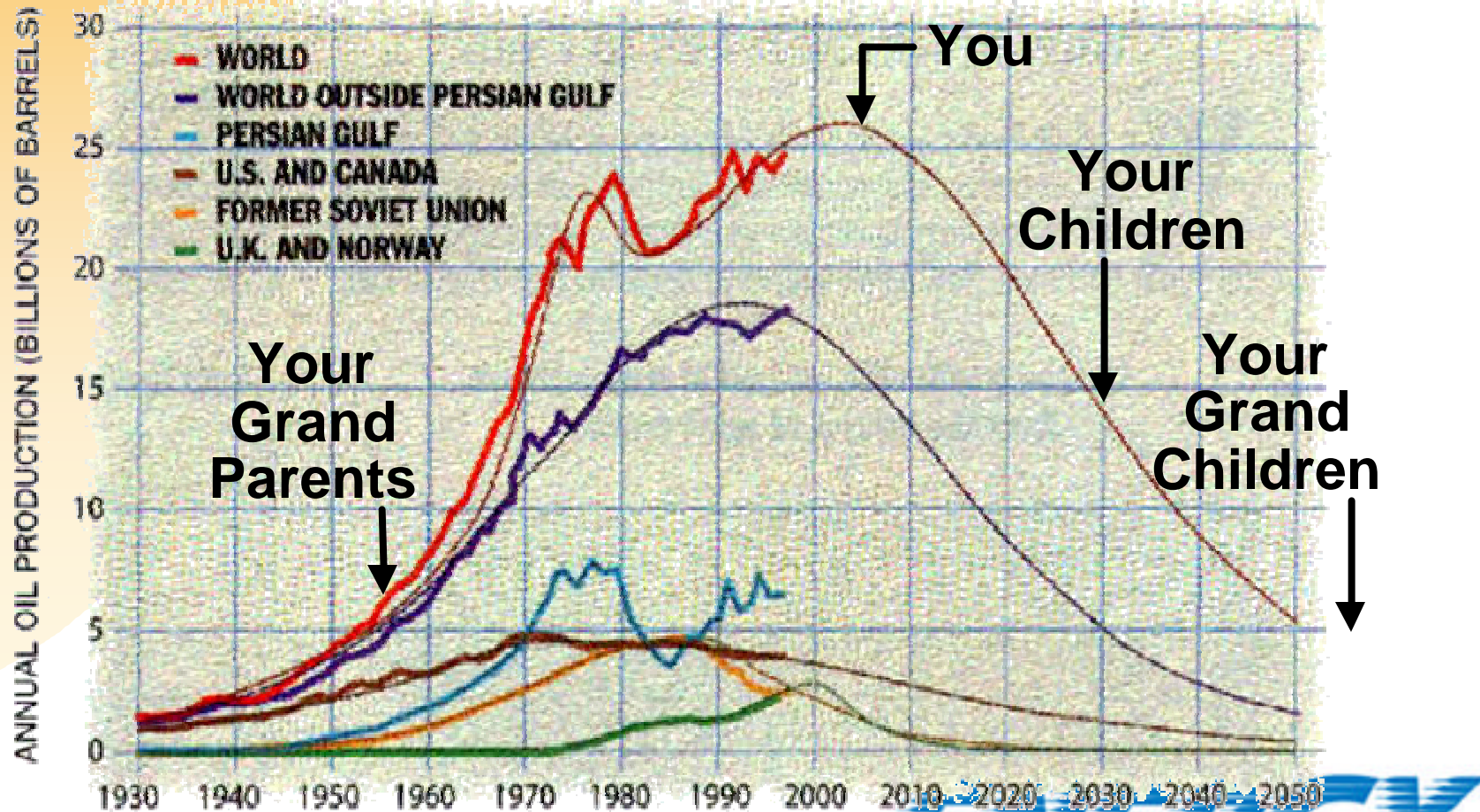
State Energy Office Background

- /// **Created in 1973,**
 - Arab Oil Embargo,
 - Petroleum Violation Escrow Funds
- /// **2000, moved from Commerce to Department of Administration**
- /// **Lead State Agency for Energy**
 - Energy Efficiency
 - Renewable Energy
 - Alternative Fuels
 - Energy Emergency Response

Energy Trends



World Oil – In Perspective



Source: Campbell, Colin J. and Jean H. Laherrere, "The End of Cheap Oil,"
Scientific American, March 1998.

World Oil Demand

By Region

MBD

140

The “China” Factor

120

100

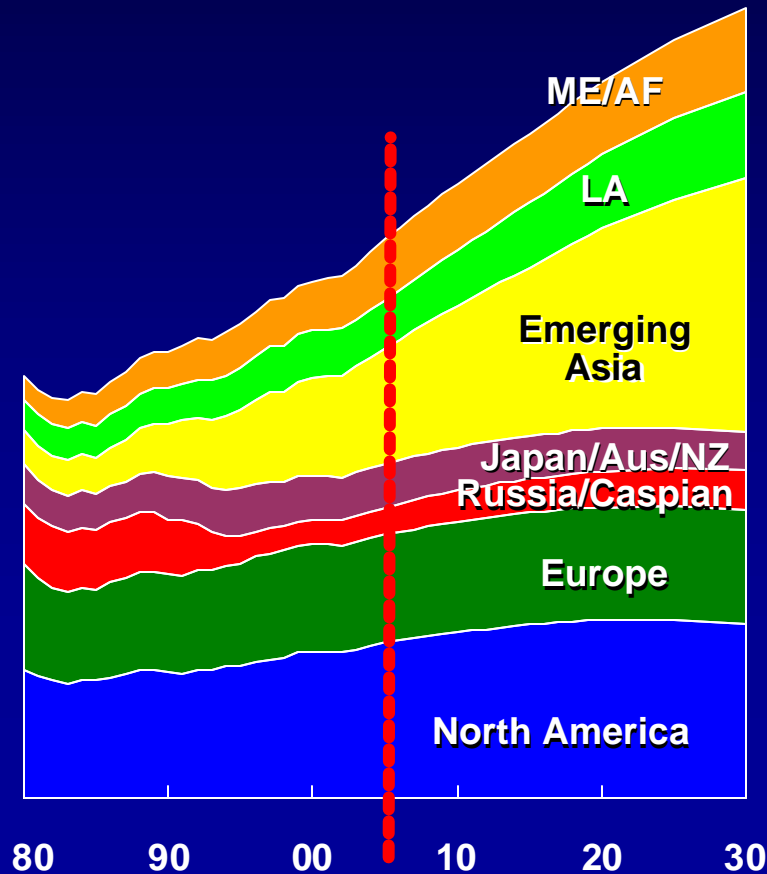
80

60

40

20

0



By Sector

MBD

140

120

100

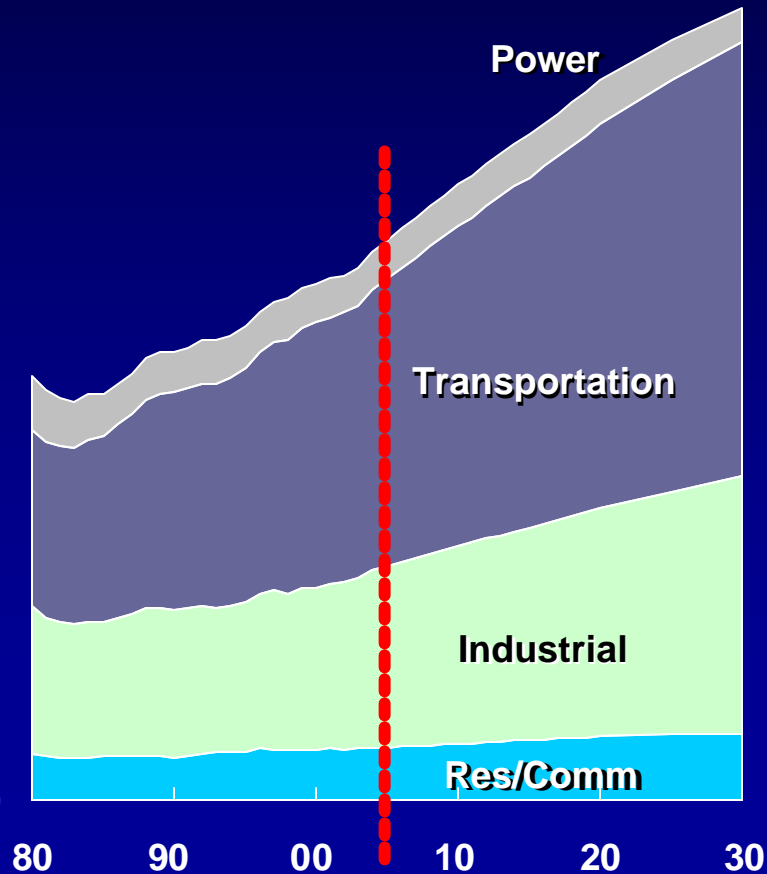
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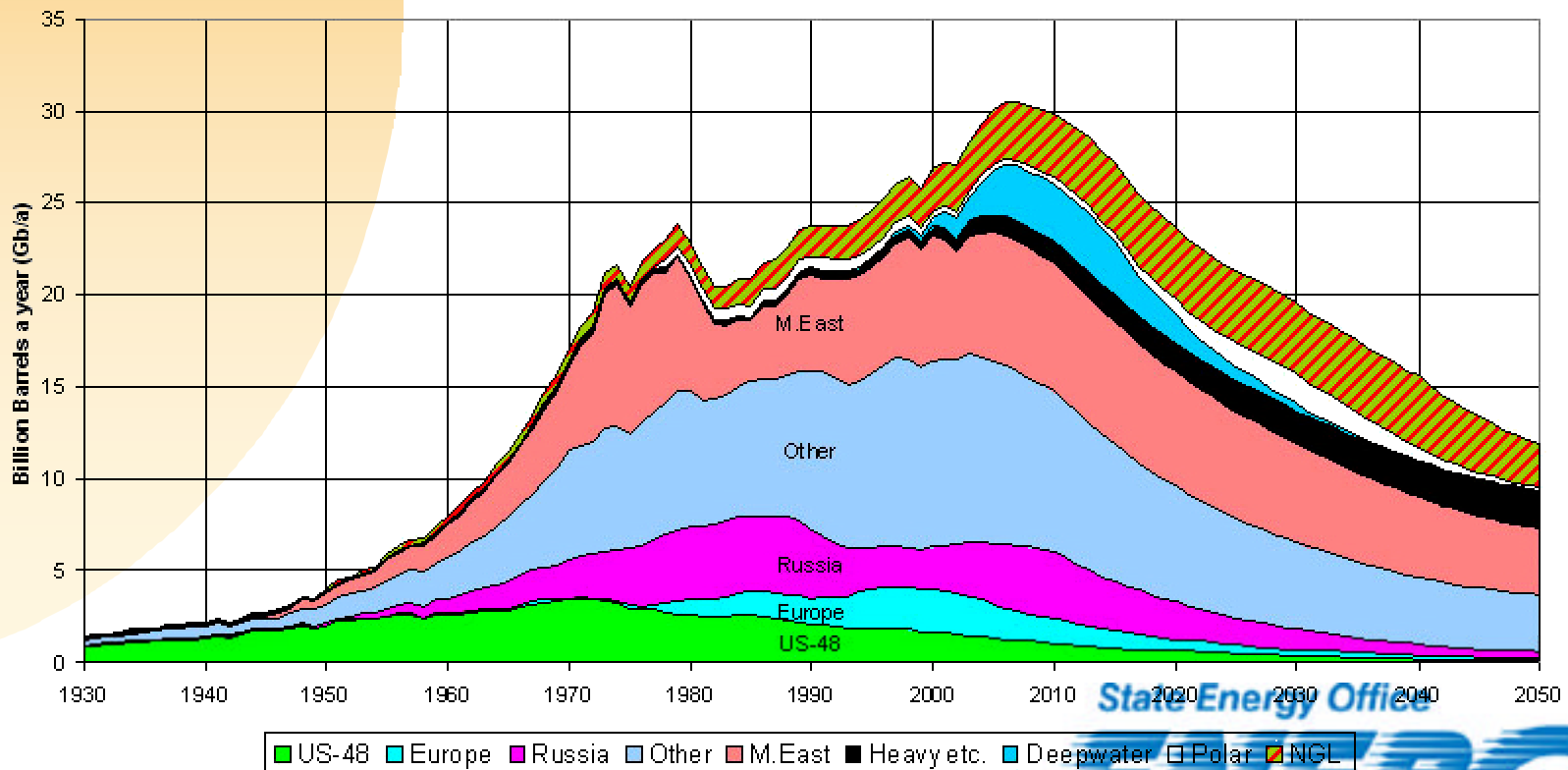
20

0



Campbell Update

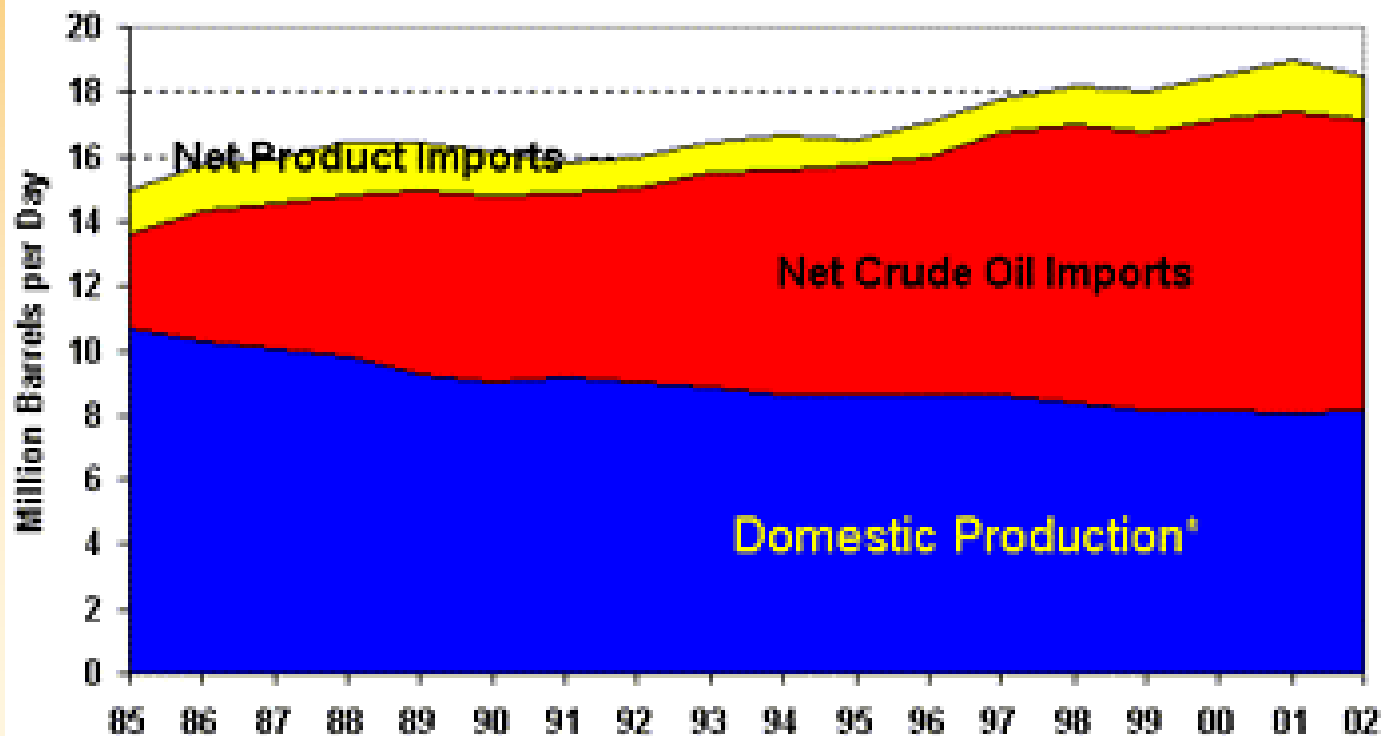
OIL AND GAS LIQUIDS 2004 Scenario



Source: Campbell, C. J. <http://www.hubbertpeak.com/campbell/>

US Petroleum Production vs. Imports

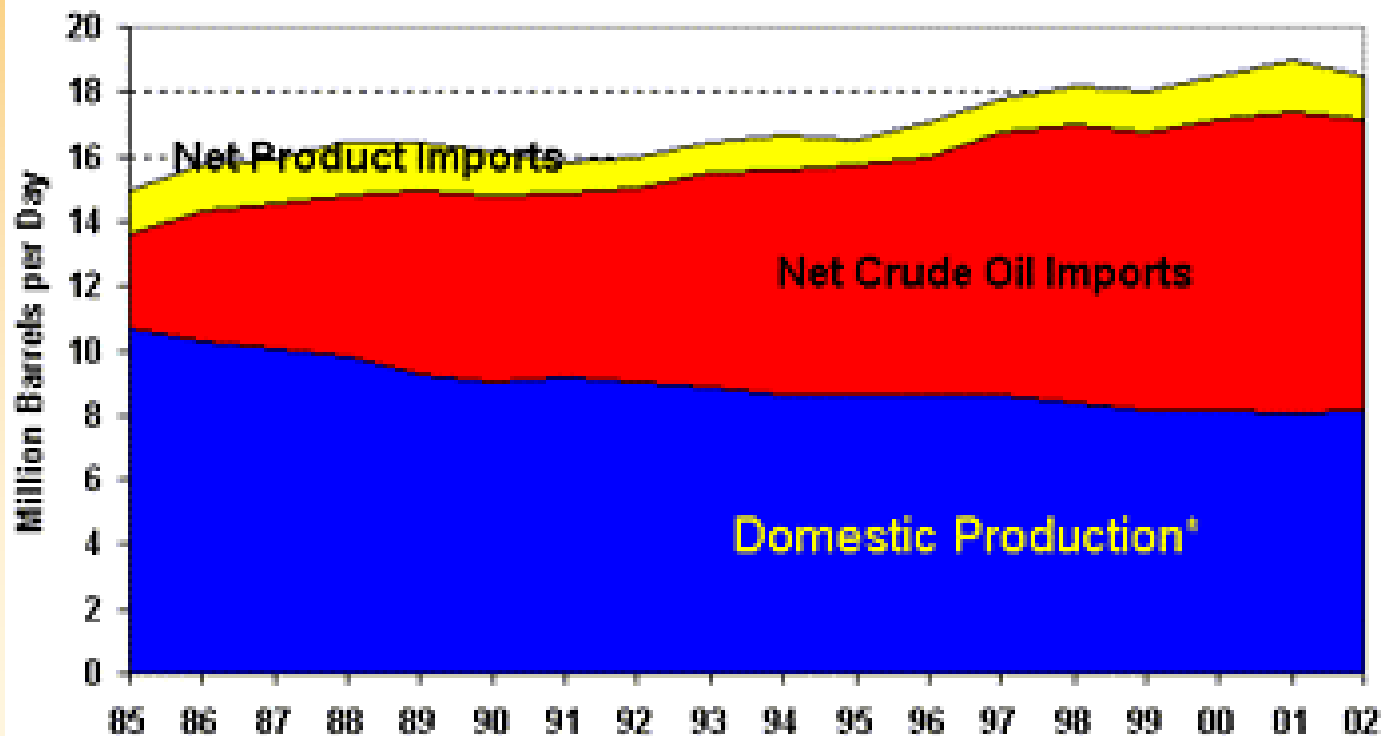
U.S. Oil Production and Imports



*Domestic production includes crude oil, natural gas liquids, and other hydrocarbons and alcohol production, but does not include refinery gain

US Petroleum Production vs. Imports

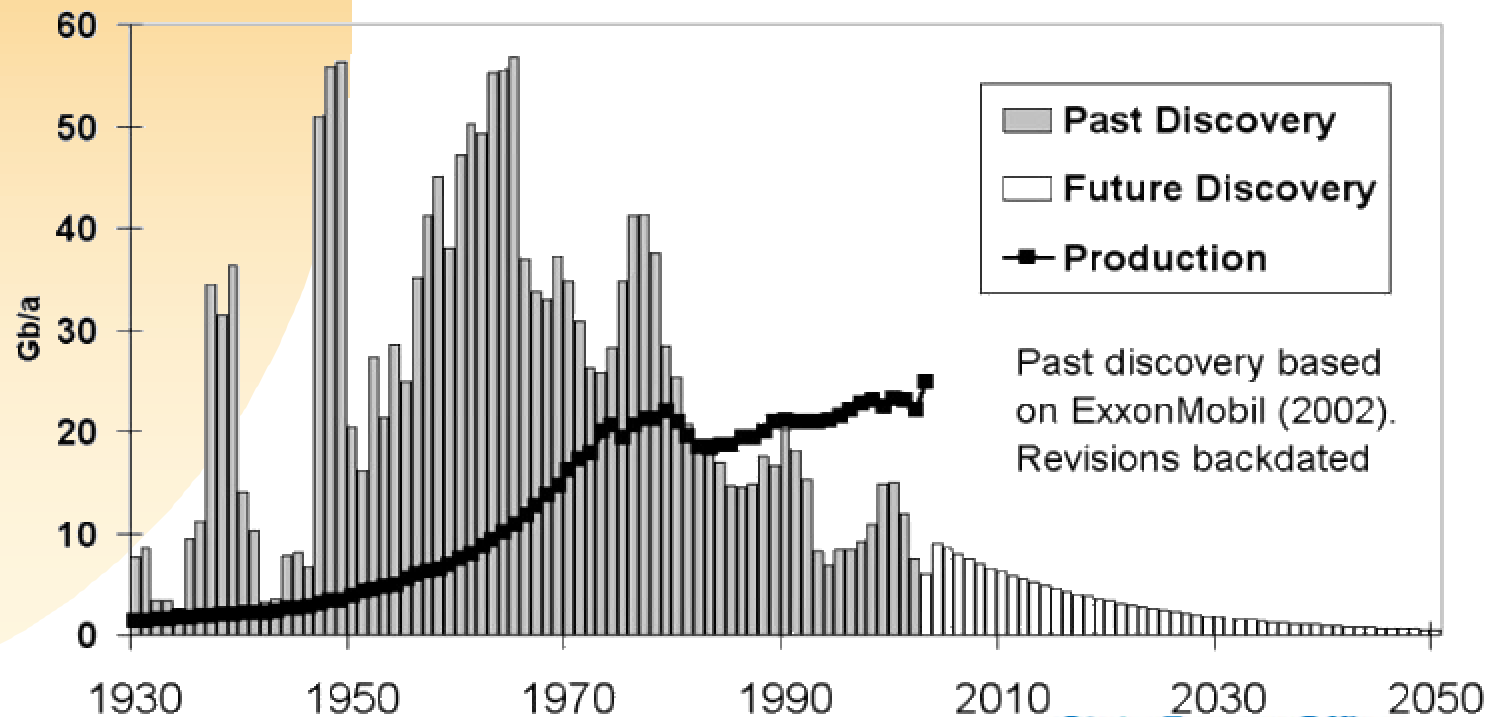
U.S. Oil Production and Imports



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New Oil?

THE GROWING GAP



State Energy Office

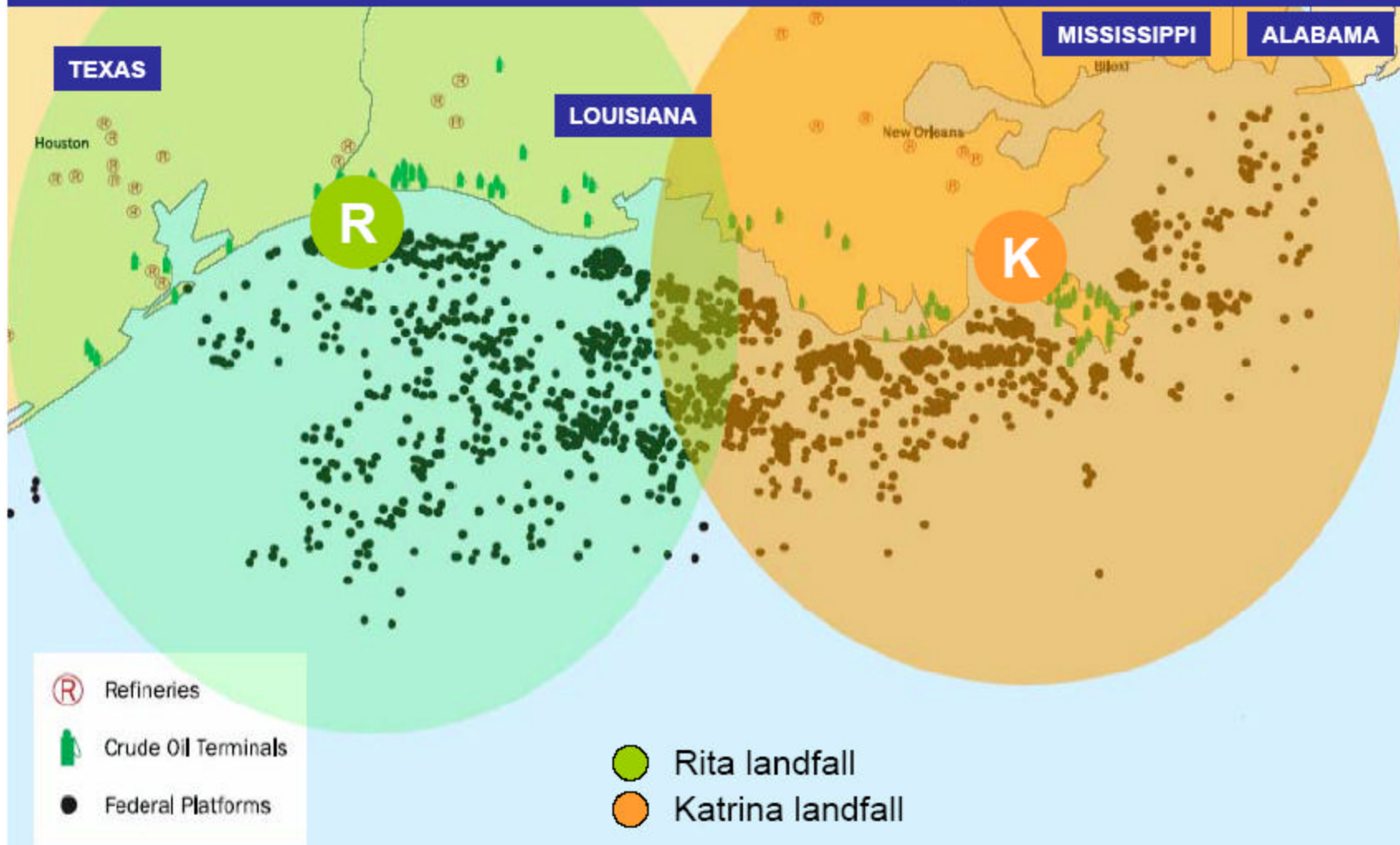
ENERGY

www.energync.net

1-800-662-7131

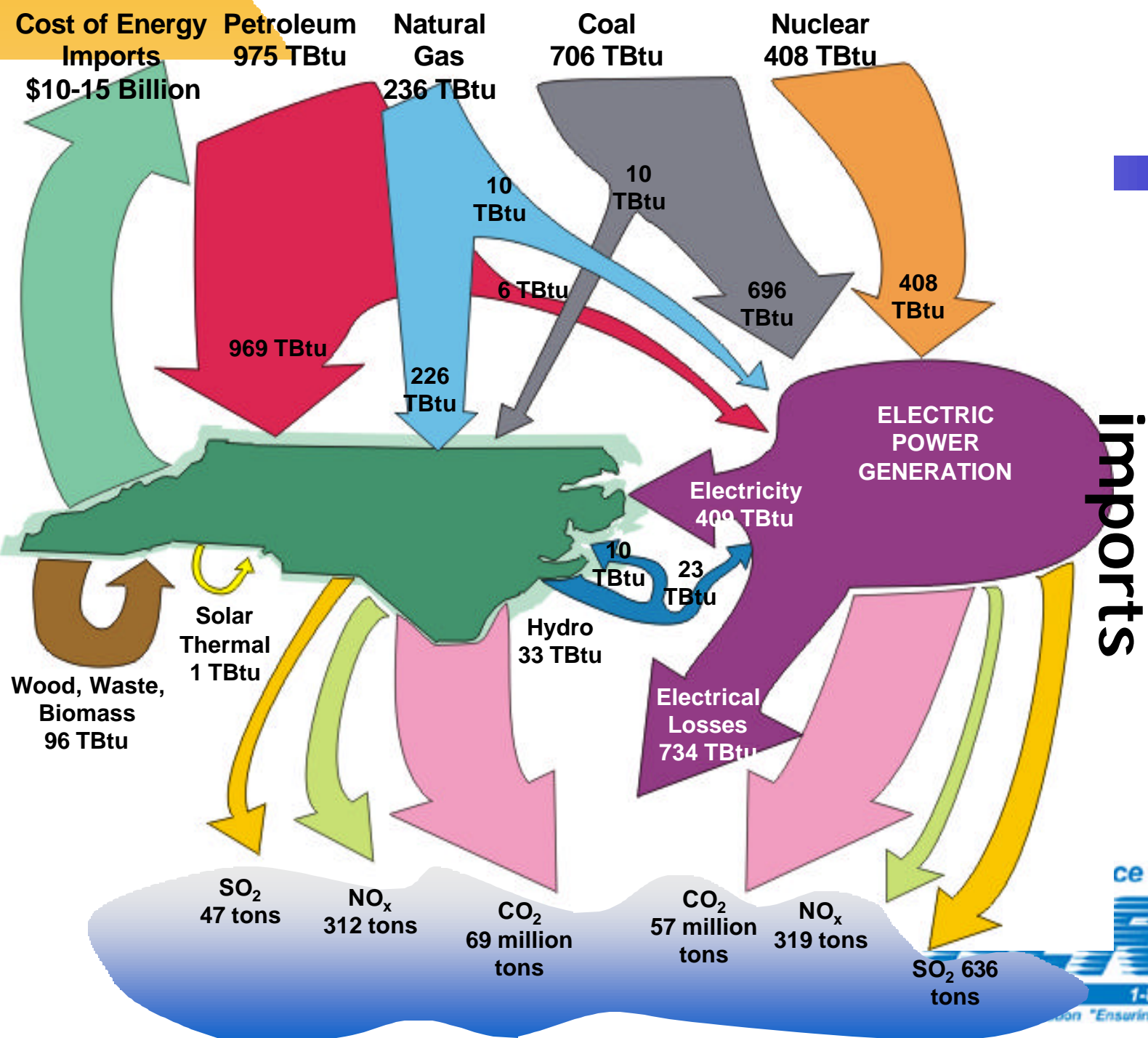
N.C. Department of Administration "Ensuring a sustainable energy future"

Hurricanes Rita, Katrina And Gulf Oil & Natural Gas Operations



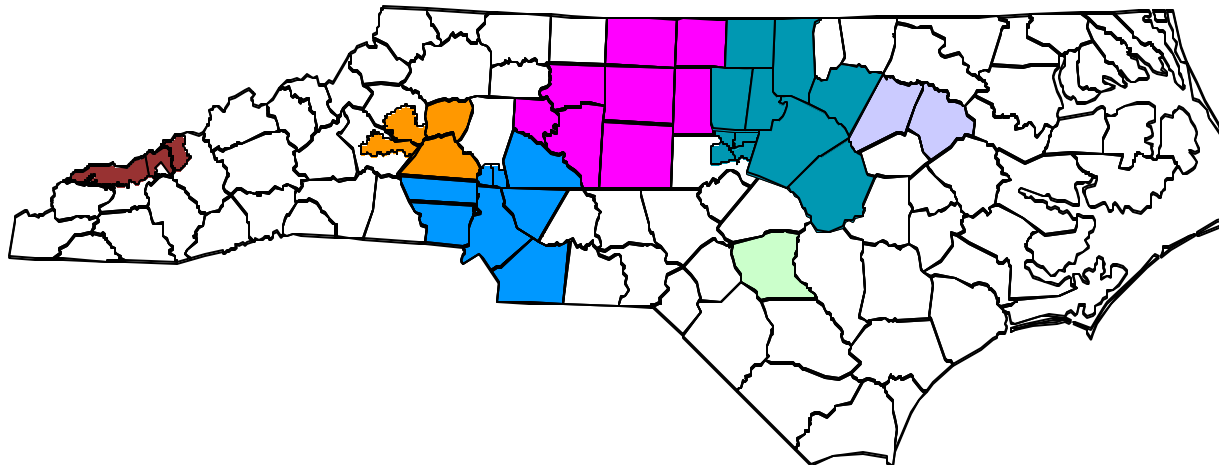
Sources: NOAA, EIA

~~\$10-\$15 billion~~ per year leaves our economy for energy imports



Ozone Nonattainment Areas

EPA's Boundary Designations for 8-Hour Ozone Standards for North Carolina (4/15/04)



Triangle_cty_415.shp
ncac_meter.shp
charlotte_cty_415.shp
Charlotte_twn_1.shp
Triad_cty_415.shp
Triangle_twn.shp
unifour_cty_415.shp
Mpo_hick_m
Great Smoky Mtn.
Fayetteville Area.shp
Rockymount_cty_415.shp



Notes:

Charlotte area: Moderate, Max. attainment date: June 2010
Triad area (EAC): Moderate, Max. attainment date: Dec. 2007
Triangle area: Basic, Max. attainment date: June 2009
Unifour area(EAC): Basic, Max. attainment date: Dec 2007
Haywood & Swain cos: Basic, Max. attainment date: June 2009
Fayetteville area(EAC): Basic, Max. attainment date: Dec 2007
Rocky Mount area: Basic, Max. attainment date: June 2009

Office

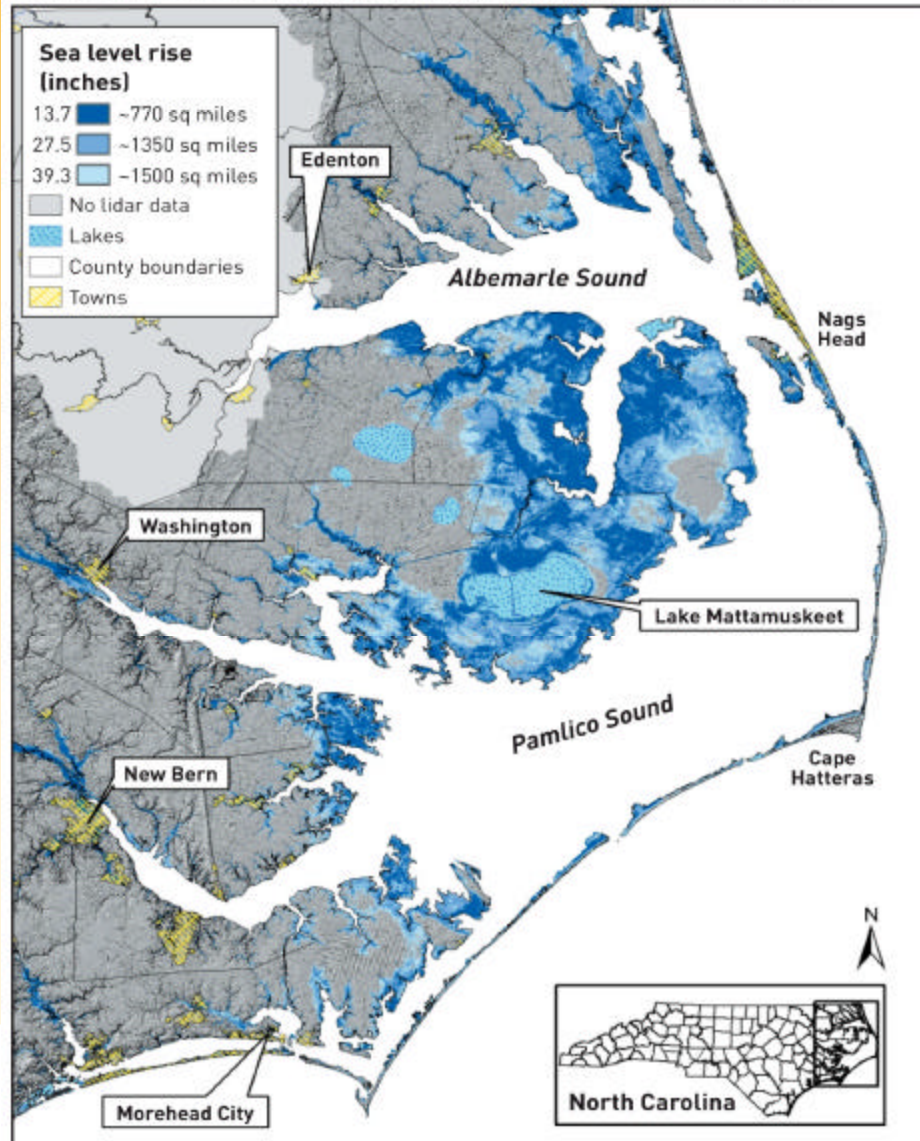
ENERGY

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N.C. Department of Administration "Ensuring a sustainable energy future"

Possible North Carolina coastline after continued sea level rise



Ben Poulter, Duke University; Sam Pearsall, The Nature Conservancy

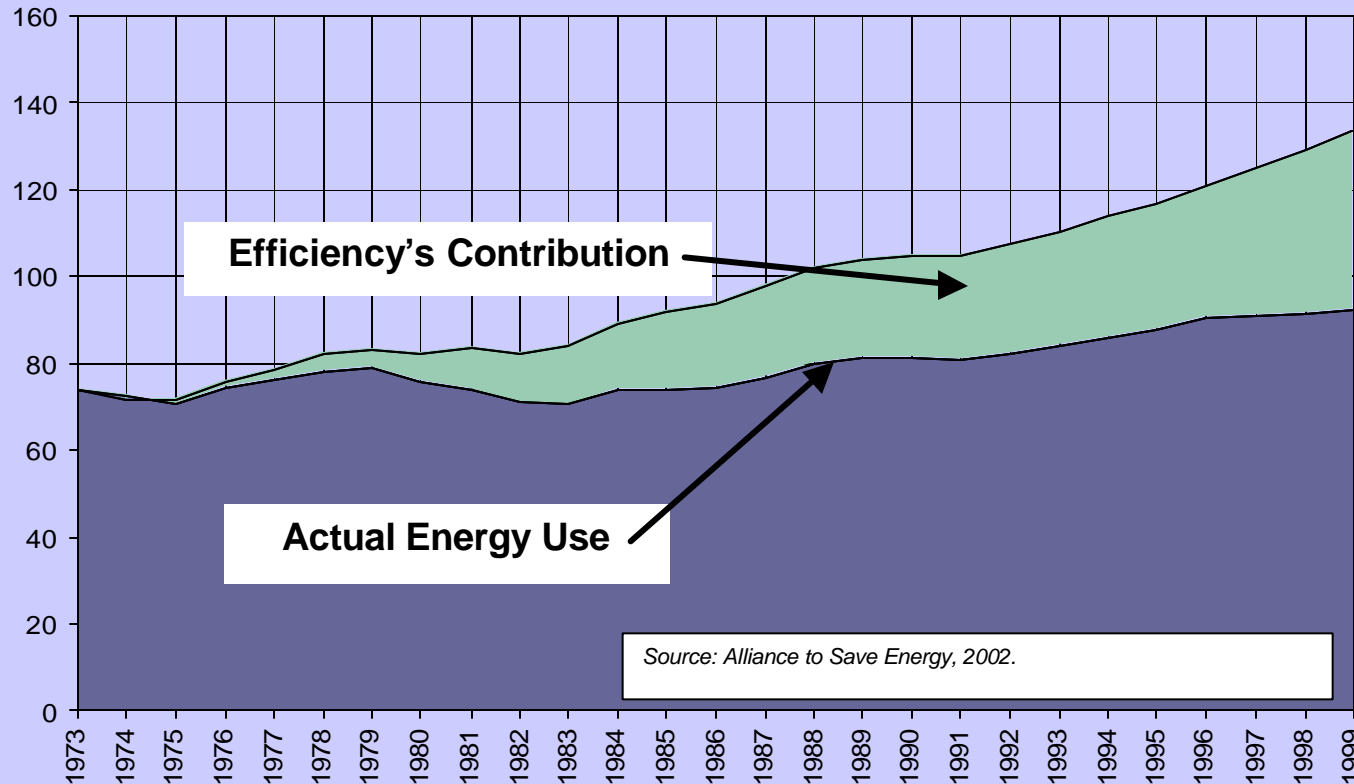
Sea Level Rise: Climate Change

State Energy Plan

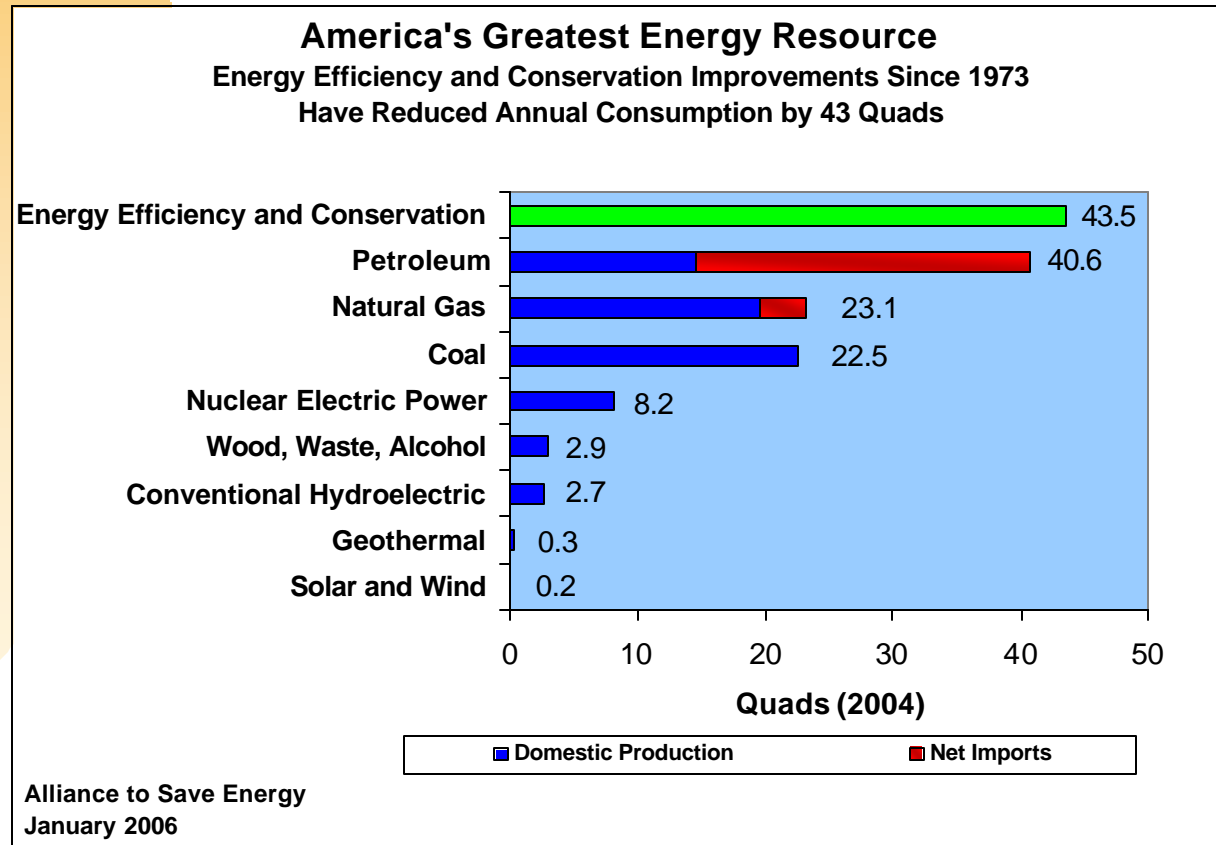
- ⚡ NC Energy Policy Council
- ⚡ Establishes a Comprehensive Energy Policy for NC
- ⚡ **92** Recommendations with 20 Top Priorities
- ⚡ Revised Annually
- ⚡ available at **www.EnergyNC.net**

Energy efficiency's contribution to our energy supply

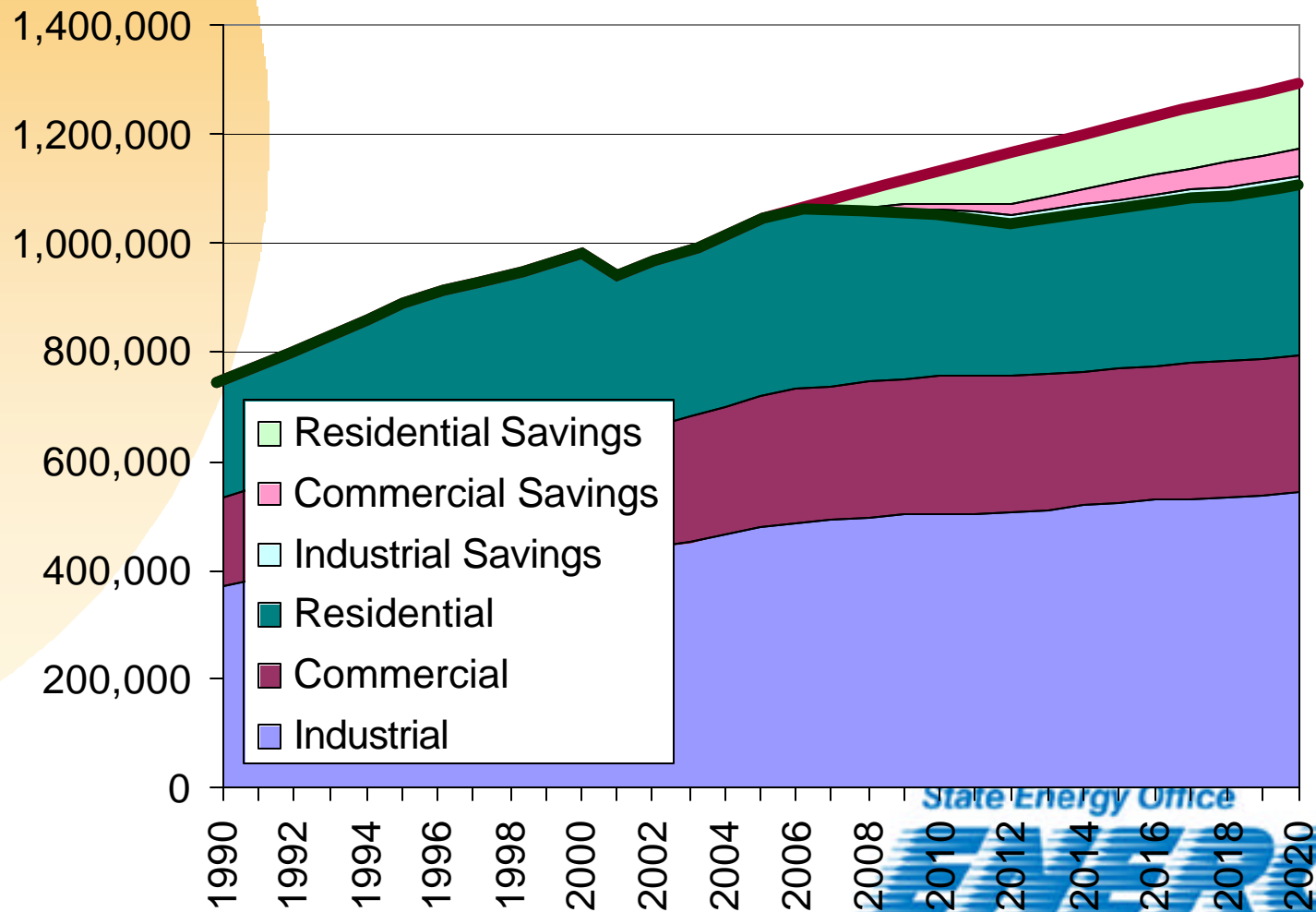
National Energy Supply (TBtus)



America's Greatest Energy Resource



Total Savings (TBtu – 15% Reduction)



Leading by Example: *Utility Savings Initiative*

/// General Statute 143-64

“The Department of Administration shall develop a comprehensive energy management program for State government. Each State agency shall develop and implement an energy management plan that is consistent with the State's comprehensive energy management program. “

4% reduction/yr for 5 years = 20%

/// Lead by Example

- Liaisons
- CAT Teams

/// Communication: Key to Success

Governor's Efficiency Commission and the State Energy Plan: Energy Use in the Public Sector

- /// State agencies and universities should reduce energy consumption by 4% annually, or 20% by 2008.
- /// **Status:**
 - SEO's *Utility Savings Initiative* working closely with 17 universities and 25 agencies, K-12, and community colleges.
 - Energy plans in place and more than \$30 million in energy savings.
 - \$100 million PC program.

Utility Savings Initiative Programs

- /// **Utility Accounting**
- /// **Energy Surveys**
- /// **Training for State Employees**
- /// **Strategic Energy Planning**
- /// **Conservation Awareness Teams**
- /// **Performance Contracting**
- /// **Boiler Technical Assistance**
- /// **Steam Trap Surveys**
- /// **HVAC Controls Tune-ups**

HVAC Controls Tune-up Program

Intent of the program

- ▶ Help for State agencies to meet energy conservation goals
- ▶ Adjust DDC systems in existing HVAC systems to reduce facility energy use
- ▶ Scheduling of equipment to shut off during peak rate periods can save funds while not affecting occupant comfort



HVAC Controls Tune-up Program

- ⚡ Vendor tunes up HVAC controls
- ⚡ 2-day fee split 50-50 with agency
- ⚡ Savings can be 15-20%
- ⚡ Less than a one-year payback
- ⚡ 270 buildings signed up
- ⚡ Training of agency technicians

Savings results from the tune-ups completed

Facility/Reports completed	Saved kWh	Saved MMBTU	Saved\$
First Flight Venture	190,433	676	13,839
Gaston CC	845,681	1,020	52,488
NC School of Arts	1,084,405	3,211	92,073
NC A&T State University (5 from 10)	1,152,705	2,110	80,209
NCSU (4 from 8)	791,842	3,456	81,964
NC Ports Authority	160,898	234	10,385
Museum of Natural Science	250,000		23,800
Winston Salem University	565,602	2,568	50,942
Wilson Technical CC	656,126	1,328	46,087
Durham Technical CC	687,488	1,478	31,263
Mitchell CC	118,143	253	8,435
Nash Rocky Mount Schools (13 from 22)	375,377	1,151	25,444
Northampton Schools	28,890	91	2,351
Western Piedmont Community College	15,454		773
Catawba Schools (3 from 16)	335,908	3,297	31,463
Total:	7,258,952	20873	551,516

Current HVAC Controls Tune-ups Progress

- /// 270 buildings submitted for participation in the program
- /// Total savings for tune-ups completed to date are estimated at: **7,088,588** kWh; **19,672** MMBTU of fuel, and **\$528,993** in annual utility costs.
- /// Conservative estimate of savings: exceeding \$8,000 per building. We will have a total up to 300 buildings to tune.
- /// Total program cost savings projected to exceed \$2.5 million annually.

Avoided Costs Reported thru 2004-05

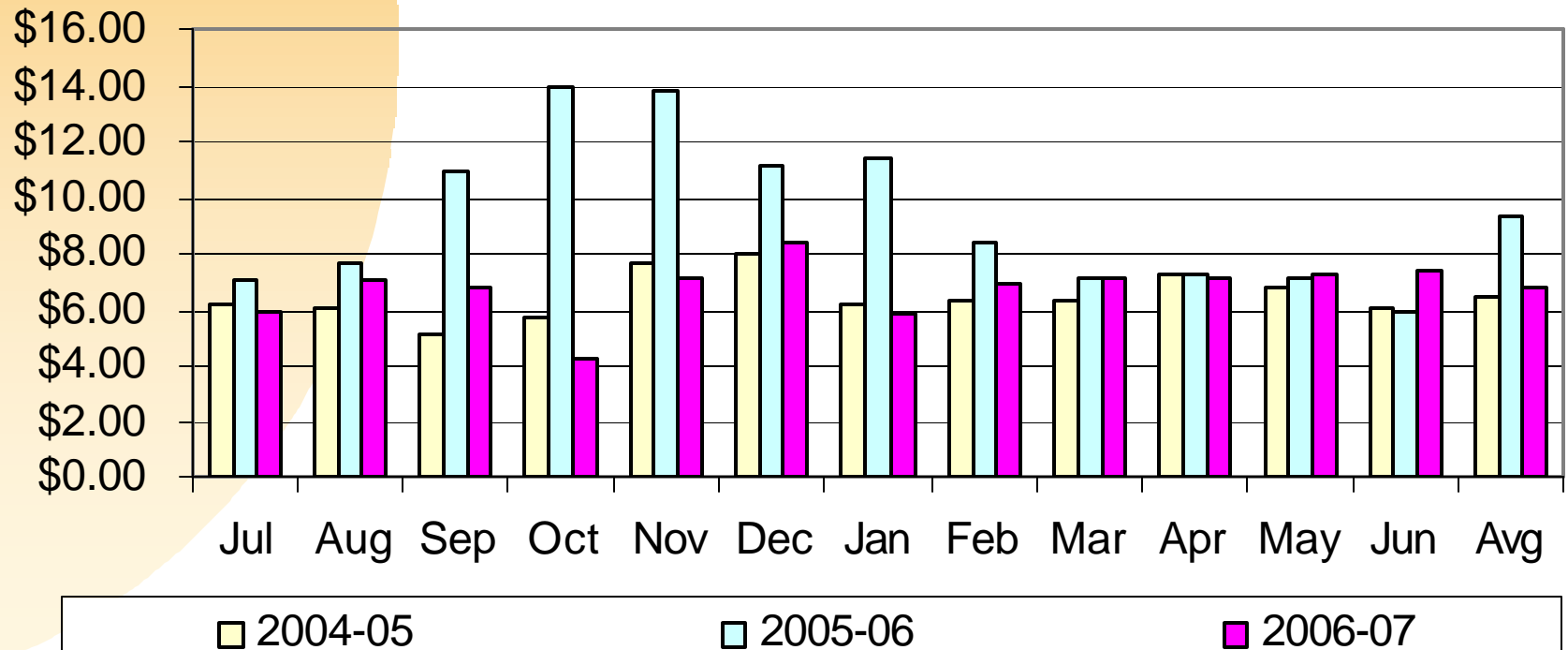
Avoided Costs Summary

Description	Amount thru 6/30/05
Evaluation of Reported Energy Data	\$29,391,314
DOT traffic signals to LED	\$879,326
Electric Rate Changes	\$754,898
Electric and Water Billing Errors	\$605,951
Rate negotiations	\$2,249,807
TOTAL	\$33,881,296

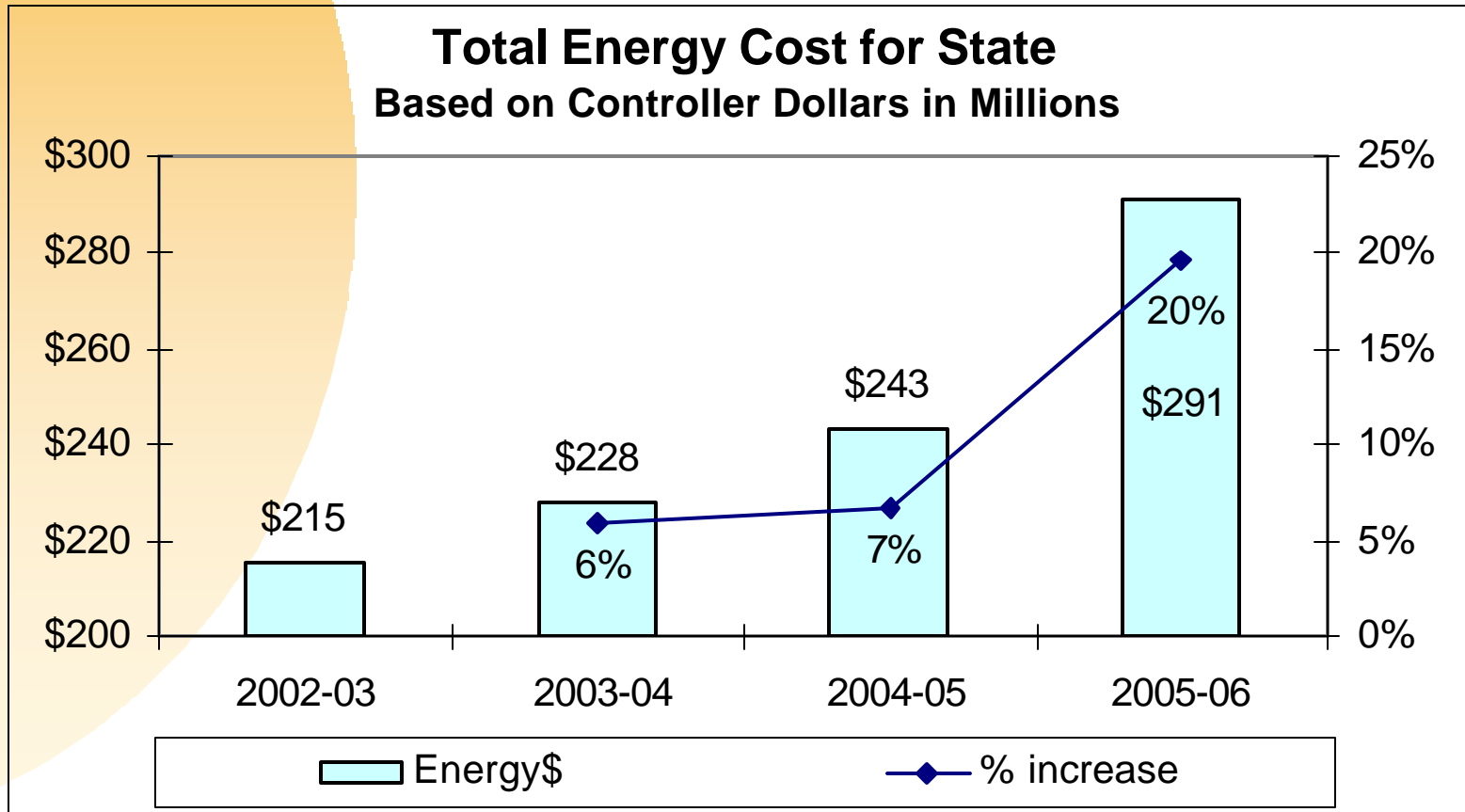
Background Data

NYMEX Natural Gas Settlement Prices

SCANA Corporation © 2006

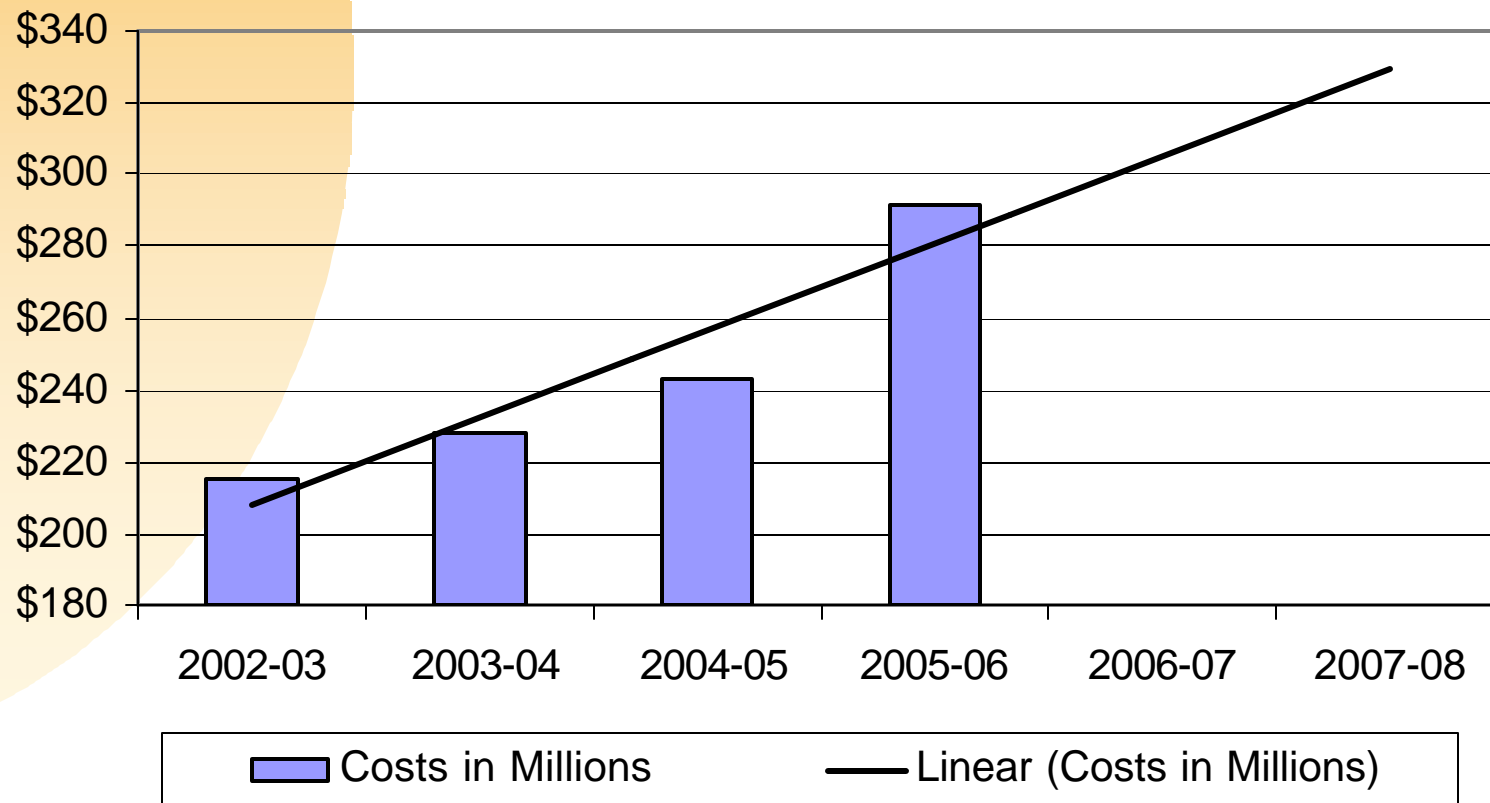


Background Data



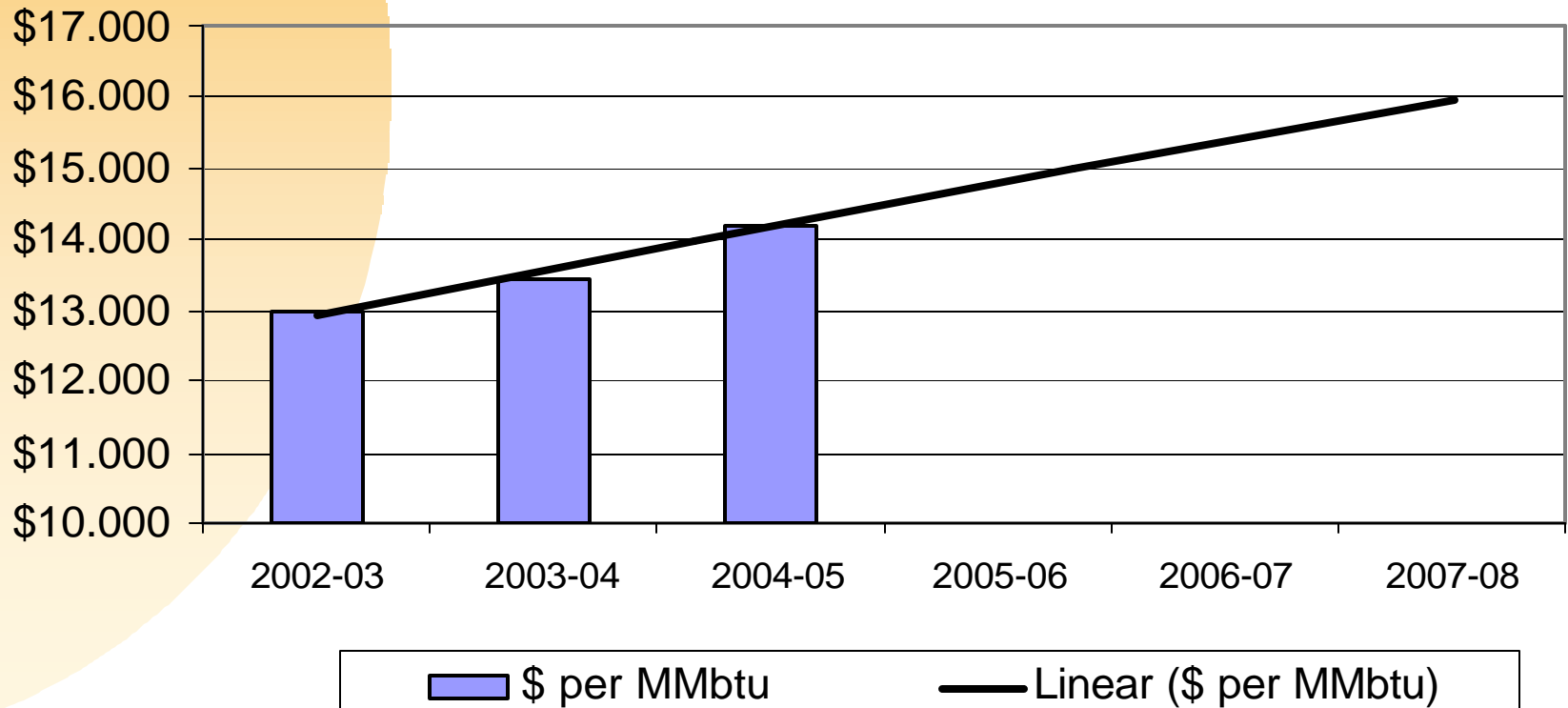
Projected Trends

Total Energy Cost for State
53% Increase Over Base Year 2002-03



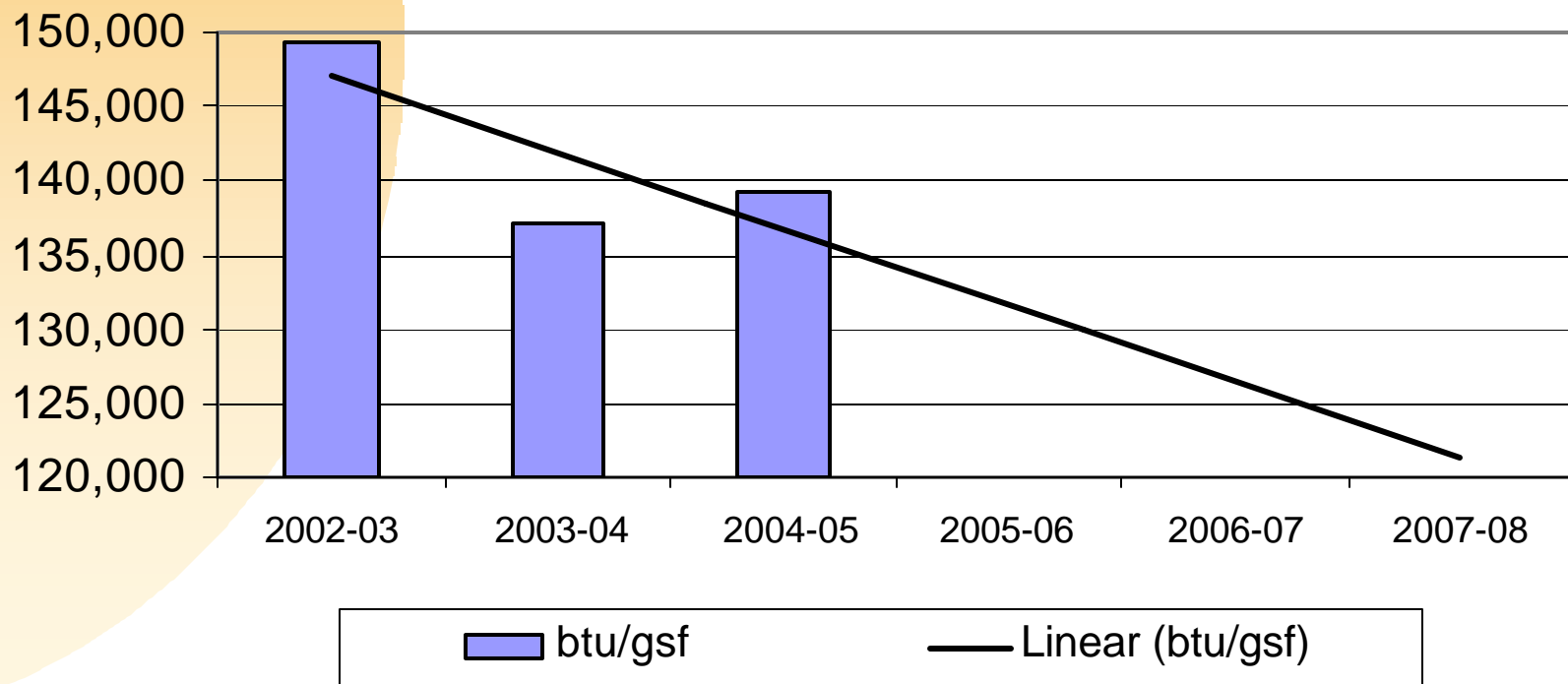
Projected Trends

Cost per Million BTU 23% Increase



Projected Trends

**Energy Use per Gross Square Foot
19% Reduction**



Energy Use in the Public Sector

- ⌘ Facilitate local governments to finance energy efficiency and renewable energy projects (loans, performance contracting, bundling).
- ⌘ **Status:**
 - DPI and SEO will co-sponsor development of energy plans for K-12 schools systems.
 - Eight community colleges entered into pilot program.
 - Local governments have more than doubled use of Performance Contracting in last two years.
 - Outreach, training and technical assistance now being provided to local governments and K-12 schools.
 - Loan program available to local governments and K-12.

Energy Use in the Public Sector

- /// SEO and State Construction Office should evaluate energy savings from new life cycle cost analysis requirements
- /// **Status:** Evaluation of random sample of recently constructed state buildings has been completed.

High Performance Buildings

- /// based on LEED rating system
- /// legislation expected for new and existing buildings
- /// 20-50% efficiency
- /// sustainable features
- /// 15 State Pilot Projects
- /// NC Arboretum
 - 10,400sf building
 - \$236/mth energy cost



NC Energy Office Contact Information

- /// **State Energy Office**
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Raleigh, NC 27604-1376
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Raleigh, NC 27699-1340
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919-733-2953-fax
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- /// **Email: energyinfo@ncmail.net**

